

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Patent Application

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| Inventor(s): | Jan I. Ben et al. | Serial No.: | 10/629,486 |
| Case: | Ben 2-16-1-10 (ALU/125969) | Filed: | July 29, 2003 |
| Examiner: | SAINT CYR, Leonard | Group Art Unit: | 2626 |
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Title: CONTENT IDENTIFICATION SYSTEM

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APPEAL BRIEF

SIR:

Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the Final Rejection mailed August 24, 2009, rejecting claims 1-19, 21-30, 32-37 and 41-45. In the event that an extension of time is required for this Appeal Brief to be considered timely, and a petition therefore does not otherwise accompany this Appeal Brief, any necessary extension of time is hereby petitioned for.

The \$540 Appeal Brief fee is being charged to counsel's credit card. Appellant does not believe that any other fee is due. In the event Appellant is incorrect, the Commissioner is authorized to charge any additional fees (including extension of time fees) to counsel's Deposit Account No. **50-4802/ALU/125969**.

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REAL PARTY IN INTEREST

The real party in interest is Alcatel Lucent.

RELATED APPEALS AND INTERFERENCES

Appellants assert that no appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-19, 21-30, 32-37 and 41-45 are pending in the application. Claims 1-40 were originally presented in the application. Claims 20, 31 and 38-40 are canceled. The rejection of claims 1-19, 21-30, 32-37 and 41-45 is appealed.

STATUS OF AMENDMENTS

There have been no claim amendments.

SUMMARY OF CLAIMED SUBJECT MATTER

Embodiments of the present invention are generally directed to a method and apparatus for program content identification. The content of a media program can be recognized with a very high degree of accuracy based on an analysis of the content of the media program without any added information provided that the media program has been previously appropriately processed to extract therefrom, and store in a database, features identifying the media program. This is achieved by analyzing the audio content of the media program being played to extract therefrom prescribed features, which are then compared to a database of features that are associated with identified content. The identity of the content within the database that has features that most closely match the features of the media program being played is supplied as the identity of the program being played.

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 21, 22-24, 34-35 and 37 are presented below with citations to various figures and appropriate citations to at least one portion of the

specification for elements of the appealed claims.

CLAIM 1 – INDEPENDENT

Claim 1 recites (with references to illustrative portions of the specification added):

1. (Previously Presented) A method for program content identification, said method comprising:

for each of at least two media program subsets (FIG. 1, 105; p.6:10-32), performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset (FIG. 1, 107, 109; p.6:26-35), said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation (FIG. 1, 111; p.7:6-14), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$ (FIG. 1, 115; p.7:6-14);

CLAIM 21 – INDEPENDENT

Claim 21 recites (with references to illustrative portions of the specification added):

21. (Previously Presented) A method for program content identification, comprising

for each of at least two media program subsets (FIG. 1, 105; p.6:10-32), performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset (FIG. 1, 107, 109; p.6:26-35), said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain

representation (FIG. 1, 111; p.7:6-14), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$; (FIG. 1, 115; p.7:6-14)

grouping ones of said second frequency domain representation to form segments (p. 7:25-27);

storing at least 30 minutes worth of segments (p. 12:3-5);

and

selecting a plurality of said segments (p.12:25-35).

CLAIM 22 – INDEPENDENT

Claim 22 recites (with references to illustrative portions of the specification added):

22. (Previously Presented) An apparatus for program, comprising:

a plurality of filters for filtering a first representation of a media program subset using frequency coefficients to develop a second representation of said media program subset that has a reduced number of frequency coefficients with respect to said first representation for each of at least two media program subsets (p.11:20-30), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$; (FIG. 1, 115; p.7:6-14)

means for grouping ones of said coefficients of said second representation to form segments; (p. 7:25-27; p. 5:9-33)

means for storing at least 30 minutes worth of segments (p. 12:3-5; p. 5:9-33); and

means for selecting a plurality of said segments (p.12:25-35; p. 5:9-33).

CLAIM 23 – INDEPENDENT

Claim 23 recites (with references to illustrative portions of the specification added):

23. (Previously Presented) An apparatus for program content identification, comprising:

means for filtering a first frequency domain representation of a media program subset using a plurality of filters to develop a second frequency domain representation of each of said subsets of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to said first frequency domain representation for each of at least two media program subsets (p.11:20-30; p. 5:9-33), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$; (FIG. 1, 115; p.7:6-14; p. 5:9-33)

means for grouping ones of said second frequency domain representation to form segments (p. 7:25-27; p. 5:9-33);

means for storing at least 30 minutes worth of segments (p. 12:3-5; p. 5:9-33); and

means for selecting a plurality of said segments (p. 12:3-5; p. 5:9-33).

CLAIM 24 – INDEPENDENT

Claim 24 recites (with references to illustrative portions of the specification added):

24. (Previously Presented) A method for program content identification, said method comprising:

for each of at least two media program subsets (FIG. 1, 105; p.6:10-32), performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset (p.11:20-30), said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation (FIG. 1, 111; p.7:6-14), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$; (FIG. 1, 115; p.7:6-14; p. 5:9-33)

grouping frequency coefficients of said second frequency domain representation of said blocks to form segments (p. 7:25-27);

searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers (p. 11:31-p.12:10);

and

determining whether said subsequent media program subset exhibits similarities to said initial media program subset (p.14:35-p.15:23).

CLAIM 34 – INDEPENDENT

Claim 34 recites (with references to illustrative portions of the specification added):

34. (Previously Presented) A method for program content identification, said method comprising

for each of at least two media program subsets (FIG. 1, 105; p.6:10-32), performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset (p.11:20-30), said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation (FIG. 1, 111; p.7:6-14), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$; (FIG. 1, 115; p.7:6-14; p. 5:9-33)

grouping ones of said second frequency domain representation to form segments (p. 7:25-27);

searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers (p. 11:31-p.12:10);

and

determining whether said subsequent media program subset exhibits similarities to said initial media program subset (p.14:35-p.15:23).

CLAIM 35 – INDEPENDENT

Claim 35 recites (with references to illustrative portions of the specification added):

35. (Previously Presented) An apparatus for program content identification, comprising:

means for filtering a first frequency domain representation of a media program subset using a plurality of filters to develop a second frequency domain representation of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to said first frequency domain representation for each of at least two media program subsets (p.11:20-30; p. 5:9-33), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of 1/12; (FIG. 1, 115; p.7:6-14; p. 5:9-33)

means for grouping ones of said second frequency domain representation to form segments; (p. 7:25-27; p. 5:9-33)

means for searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers (p. 12:3-5; p. 5:9-33);

and

means for determining whether said subsequent media program subset exhibits similarities to said initial media program subset(p.14:35-p.15:23; p. 5:9-33).

CLAIM 37 – INDEPENDENT

Claim 37 recites (with references to illustrative portions of the specification added):

37. (Previously Presented) A computer readable storage arranged to store at least 30 minutes worth of segments derived from, and representative of, various media programs, said segments of each respective one of said media programs being stored in said database so as to be associated with a unique media program identifier;

wherein each of said segments is developed by filtering a first frequency domain representation of said media program using a plurality of filters to develop a second frequency domain representation of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to said first frequency domain representation, and grouping ones of said second frequency domain representation for each of at least two media program subsets (p.11:20-30; p. 5:9-33), said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$. (FIG. 1, 115; p.7:6-14; p. 5:9-33).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1-19, 21-30, 32-37 and 41-45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter Logan).

II. Claims 22, 23, 35 and 36 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

ARGUMENT

I. Rejection of claims 1-19, 21-30, 32-37 and 41-45.

Claims 1-19, 21-30, 32-37 and 41-45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”).

A.1. Claim 1.

Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”). Appellants urge to the contrary.

1. The Examiner failed to establish a prima facie showing of obviousness because Weare, McEachern and Logan alone or in combination fail to teach or suggest all the claim elements.

Appellants initially show error in the rejection of claim 1 in that the Examiner failed to establish a factual basis to support the legal conclusion of obviousness¹. See *In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988).

A *prima facie* case of obviousness has not been established because Weare, McEachern and Logan alone or in combination fail to teach or suggest all elements of Appellant’s independent claim 1.

Specifically, as recited in independent claim 1, the Examiner suggests that Weare teaches:

“filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation, said plurality of

¹ In rejecting claims under 35 U.S.C. §103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The burden of coming forward with evidence or argument shifts to the Appellant only if the Examiner’s burden is met. *Id.* To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. MPEP 2143.03. See also. *In re Royka*, 490 F.2d 580 (C.C.P.A. 1974). If the Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;" (emphasis added). See Final Office Action, page 14.

The Examiner cites col. 16, lines 47; fig. 7, element 750 in support of the rejection. The cited passage is reproduced below for ease of comparison.

"For each frame of data, at 750, critical band filtering is performed on the data, and the average of the data is calculated at 765."

The phrase "filtering" is thus mentioned in the cited passage. The mere mentioning of the phrase does not necessarily mean that the claimed limitation is taught. For example, the claimed limitation recites phrases such as "first frequency domain," "second frequency domain," which are absent from the cited passage.

Neither Examiner's argument, nor portions of Weare cited by the Examiner discusses sending the second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation.

2. All words in a claim must be considered.

As articulated above, Appellant's claim 1 requires not only a first frequency domain representation, but also a second frequency domain representation. Neither Examiner's argument, nor portions of Weare cited by the Examiner discusses a first frequency domain representation and a second frequency domain representation. Weare is completely silent with respect to such a feature.

In order for the Examiner to arrive at such conclusion, apparently, the Examiner ignored a major portion of the claimed limitation. This constitutes a fatal error in the Examiner's claim construction approach. It appears the Examiner does not accord any patentable weight to phrases such as "first frequency domain," "second frequency domain," "said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation" within the context of the claims. All words in a claim must be considered in judging the patentability of that claim against the prior art. See MPEP §2143.03. One

cannot divine claim meaning in a vacuum. *Philips v. AWH Corporation* (Fed. Cir. July 12, 2005).

3. *Neither McEachern nor Logan cure Weare's deficiencies.*

McEachern discloses a filter bank to determine discrete tone determinations and Logan is directed to a method and apparatus for automatically generating a summary of key phrase for a song. However, neither reference cures Weare's deficiencies. Accordingly, because the cited references alone or in combination do not describe each element of Appellant's claim 1 and because the Examiner does not provide a rationale for why adding the missing elements might be obvious in view of the references, a *prima facie* case of obviousness regarding claim 1 has not been established.

4. *The Examiner's Comments Are Inadequate To Establish a Factual Basis in Support of The Rejection: The Examiner Relied on Improper Hindsight Analysis*

Further, along with the single citation in support of the rejection, the Examiner commented: "describing a critical band filtering step, which can be modeled as a filter bank, thus indicating that a plurality of filters exists." In fact, Weare explains that:

"For each frame, the energy of the frame is calculated by calculating the root mean square (RMS) value of the frame. An FFT of that frame is then taken. The entropy content of the frame is then calculated..." col. 16:1:5.

The conclusion that a "a plurality of filters exists" is not supported by the process described in Weare. In this case, it is apparent the Examiner relied on hindsight to manufacture this conclusion deduced by surmise. "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning." *KSR*, 550 U.S. at 421. It is impermissible to use the claims as a framework from which to choose among individual references to recreate the claimed invention. *W. L. Gore Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552-53, 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983). This is a classic case where obviousness is deceptive in hindsight.

Measuring a claimed invention against the standard established by 35 U.S.C. §103 requires the difficult but critical step of casting the mind back to the time of invention, to

consider the thinking of one of ordinary skill in the art, guided only by the prior art and then-accepted wisdom in the field. *Id.*, 721 F.2d at 1553, 220 U.S.P.Q. at 313. Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one “to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *Id.* In view of the foregoing, claim 1 is patentable under 35 U.S.C. §103(a) over Weare alone or combined with McEachern and Logan.

5. *Rejections on obviousness cannot be sustained by mere conclusory statements: Examiner's burden not met.*

The Examiner seems to believe there was an apparent reason to combine Weare, McEachern and Logan to produce the claimed subject matter, because the Examiner cited McEachern as providing the motivation. (See Final Office Action, p. 5). Such a showing requires, ‘some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l v. Teleflex, Inc.* 127 S. Ct. 1727 (2007).

Here, the Examiner simply stated: “Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use logarithm filters as taught by McEachern in Weare et al., because that would help extract the information content of audio signals (col. 1, lines 10-14).

The Examiner attempted to provide a reason to combine the prior art in the fashion claimed, because the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement. However, this fails to provide some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, it is merely conclusory. Accordingly, the Examiner's burden in making factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) is not met.

6. Conclusion

Appellants respectfully submit that there is no suggestion in Weare in view of McEachern and Logan that would have resulted in Appellants' invention as provided in independent claim 1.

A.2. Claims 2-19 and 41-42.

Claims 2-19 and 41-42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter "Weare") in view of McEachern (US Patent 5,615,302, hereinafter "McEachern") and further in view of Logan et al. (US Patent 6,633,845, hereinafter "Logan"). Appellants urge to the contrary.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. §103 given Weare, McEachern and Logan as applied to claim 1 above.

As articulated above with respect to claim 1, there are missing claimed features not taught/suggested by the cited references – including "filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation," (emphasis added) – and thus, dependent claims 2-19 have been erroneously rejected under 35 U.S.C. §103(a). The Examiner failed to establish a *prima facie* showing of obviousness.

Therefore, Appellants' claims 2-19 and 41-42 are patentable under 35 U.S.C. §103(a) over Weare, McEachern and Logan as applied to claim 1 above.

A.3. Claims 21 and 37.

Claims 21 and 37 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter "Weare") in view of McEachern (US Patent 5,615,302, hereinafter "McEachern") and further in view of Logan et al. (US Patent 6,633,845, hereinafter "Logan"). Appellants urge to the contrary.

As articulated above with respect to claim 1, Weare fails to teach all elements of independent claim 1 as required under 35 U.S.C. §103 for establishing a *prima facie*

showing of obviousness. Independent claims 21 and 37 recite relevant limitations similar to those recited in independent claim 1 and, as such, independent claims 21 and 37 also are patentable under 35 U.S.C. §103(a) over Weare alone or combined with McEachern and Logan.

In addition to the reasons discussed above, claim 21 is allowable because it recites an additional element not taught by the cited references. More specifically, claim 21 recites “storing at least 30 minutes worth of segments.” The Examiner contends that Logan’s suggestion that segments of sizes other than 1 second may be utilized suggests storing at least 30 minutes worth of segments. (See Final Office Action, p. 11). This assertion is tenuous and farfetched. Logan is totally silent about storing any segment, let alone 30 minutes worth of segments. Again, to jump from “segments of sizes other than 1 second may be utilized” as disclosed by Logan to the claimed limitation of “storing at least 30 minutes worth of segments” is tenuous at best. The Examiner compensates for gaps and ambiguities in the teachings of the prior art by improperly piecing together the claimed invention using hindsight.

Further, the same defective motivation used in claim 1 is also employed in the rejection of claims 21 and 37. Accordingly, it is further shown that claims 21 and 37 are erroneously rejected because the prior art failed to teach or fairly suggest each element of Appellant’s claims 21 and 37, a *prima facie* case of obviousness has not been established, and thus, claims 21 and 37 are allowable under 35 U.S.C. §103.

A.4. Claim 43.

Claim 43 is rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”). Appellants urge to the contrary.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. §103 given Weare, McEachern and Logan as applied to claim 1 above.

As articulated above with respect to claim 21, there are missing claimed features not taught/suggested by the cited references – including “filtering each first frequency

domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation.” (emphasis added) – and thus, dependent claims 43 have been erroneously rejected under 35 U.S.C. §103(a). The Examiner failed to establish a *prima facie* showing of obviousness.

Therefore, Appellants’ claim 43 is patentable under 35 U.S.C. §103(a) over Weare, McEachern and Logan as applied to claim 21 above.

A.5. Claims 22, 23 and 35.

Claims 22 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”). Appellants urge to the contrary.

As articulated above with respect to claim 1, Weare fails to teach all elements of independent claim 1 as required under 35 U.S.C. §103 for establishing a *prima facie* showing of obviousness. Independent claims 22 and 23 recite relevant limitations similar to those recited in independent claim 1 and, as such, independent claims 22 and 23 also are patentable under 35 U.S.C. §103(a) over Weare alone or combined with McEachern and Logan.

In addition to the reasons discussed above, claims 22, 23 and 35 are allowable because they recite additional elements not taught by the cited references. More specifically, claims 22 and 23 recite: “means for storing at least 30 minutes worth of segments.” As articulated above with respect to claim 21, the Examiner compensates for gaps and ambiguities in the teachings of the prior art by improperly piecing together the claimed invention using hindsight. Claim 35 recites: “means searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers,” which was not addressed by the Office Action.

Further, claims 22, 23 and 35 utilize “means for” recitations, and as such requires the Examiner to consider the specific structure described in the specification to interpret these limitations. On page 5, beginning at line 9, the specification provides:

The functions of the various elements shown in the FIGs., including any functional blocks labeled as “processors”, may be provided through the use of dedicated hardware as well as hardware capable of executing software in association with appropriate software. When provided by a processor, the functions may be provided by a single dedicated processor, by a single shared processor, or by a plurality of individual processors, some of which may be shared. Moreover, explicit use of the term “processor” or “controller” should not be construed to refer exclusively to hardware capable of executing software, and may implicitly include, without limitation, digital signal processor (DSP) hardware, network processor, application specific integrated circuit (ASIC), field programmable gate array (FPGA), read-only memory (ROM) for storing software, random access memory (RAM), and non-volatile storage.

Therefore, the “means for” limitation recited in the invention cannot be broadly interpreted by the Examiner to read on the implementation taught by Weare et al. In *re Donaldson Co.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). The structure disclosed by the Applicant cannot be disregarded. Because Weare et al. does not teach or suggest each and every element of claims 22, 23 and 35, it does not render claims 22, 23 and 35 obvious.

Further, the same defective motivation used in claim 1 is also employed in the rejection of claims 22, 23 and 35. Accordingly, it is further shown that claims 22, 23 and 35 are erroneously rejected because the prior art failed to teach or fairly suggest each element of Appellant’s claims 22, 23 and 35, a *prima facie* case of obviousness has not been established, and thus, claims 22, 23 and 35 are allowable under 35 U.S.C. §103.

A.6. Claims 44 and 45.

Claims 44 and 45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”). Appellants urge to the contrary.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. §103 given Weare, McEachern and Logan as applied to claims 22 and 23 above.

As articulated above with respect to claims 22 and 23, there are missing claimed features not taught/suggested by the cited references – including “filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation,” (emphasis added) – and thus, dependent claims 44 and 45 have been erroneously rejected under 35 U.S.C. §103(a). The Examiner failed to establish a *prima facie* showing of obviousness.

Therefore, Appellants’ claims 44 and 45 are patentable under 35 U.S.C. §103(a) over Weare, McEachern and Logan as applied to claims 22 and 23 above.

A.7. Claims 24 and 34.

Claims 24 and 34 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter “Weare”) in view of McEachern (US Patent 5,615,302, hereinafter “McEachern”) and further in view of Logan et al. (US Patent 6,633,845, hereinafter “Logan”). Appellants urge to the contrary.

As articulated above with respect to claim 1, Weare fails to teach all elements of independent claim 1 as required under 35 U.S.C. §103 for establishing a *prima facie* showing of obviousness. Independent claims 24 and 34 recite relevant limitations similar to those recited in independent claim 1 and, as such, independent claims 24 and 34 also are patentable under 35 U.S.C. §103(a) over Weare alone or combined with McEachern and Logan.

In addition to the reasons discussed above, claims 24 and 34 are allowable because they recite an additional element not taught by the cited references. More specifically, claim 24 and 34 recite: “searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers,” which the Examiner did not provide any citation for.

Further, the same defective motivation used in claim 1 is also employed in the rejection of claims 24 and 34. Accordingly, it is further shown that claims 24 and 34 are erroneously rejected because the prior art failed to teach or fairly suggest each element of

Appellant's claims 24 and 34, a *prima facie* case of obviousness has not been established, and thus, claims 24 and 34 are allowable under 35 U.S.C. §103.

A.8. Claims 25-33.

Claims 25-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weare et al. (US Patent 7,065,416, hereinafter "Weare") in view of McEachern (US Patent 5,615,302, hereinafter "McEachern") and further in view of Logan et al. (US Patent 6,633,845, hereinafter "Logan"). Appellants urge to the contrary.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. §103 given Weare, McEachern and Logan as applied to claim 24 above.

As articulated above with respect to claim 24, there are missing claimed features not taught/suggested by the cited references – including "filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation," (emphasis added) – and thus, dependent claims 25-33 have been erroneously rejected under 35 U.S.C. §103(a). The Examiner failed to establish a *prima facie* showing of obviousness.

Therefore, Appellants' claims 25-33 are patentable under 35 U.S.C. §103(a) over Weare, McEachern and Logan as applied to claim 24 above.

II. Claims 22, 23, 35 and 36 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

The Examiner contends that:

"the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The invention as described in the specification, page 7, and Figs. 1-6, does not show any means for grouping the coefficient of the second representation; means for searching a database for substantially matching segments; and means for determining whether said subsequent media program

subset exhibits similarities to said initial media program subset.” (Final Office Action, p. 3).

However, on page 5 of the specification, it states:

“In the claims hereof any element expressed as a means for performing a specified function is intended to encompass any way of performing that function including, for example, a) a combination of circuit elements which performs that function or b) software in any form, including, therefore, firmware, microcode or the like, combined with appropriate circuitry for executing that software to perform the function. The invention as defined by such claims resides in the fact that the functionalities provided by the various recited means are combined and brought together in the manner which the claims call for. Applicant thus regards any means which can provide those functionalities as equivalent as those shown herein.”

As can be seen, the subject matter is discussed at length in the specification. Therefore, the Examiner’s assertion is without merits. Applicants respectfully request withdrawal of the rejection.

Further, the Examiner listed the limitations of the claims, however, did not present any evidence let alone presenting evidence by a preponderance to establish a reasonable basis for questioning the adequacy of the disclosure. The Examiner must set forth express findings of fact which support the lack of written description conclusion. See MPEP §2163.04(I). Consequently, the Examiner failed to support the rejection as required by the rules. The rejection is traversed and withdrawal of same is respectfully requested. Therefore, Applicants’ claims 22, 23, 35 and 36 are patentable under 35 U.S.C. §112. ¶1.

CONCLUSION

Appellants have shown multiple errors in the Examiner's final rejection of the claims in the present case. Therefore, based on at least the foregoing, and as the Examiner has failed to make out a prima facie case for an obviousness rejection, the rejection of claims 1-19, 21-30, 32-37 and 41-45 should be reversed.

It is well settled that in order for a rejection under 35 U.S.C. §103(a) to be appropriate, the claimed invention must be shown to be obvious in view of the prior art as a whole. A claim may be found to be obvious if it is first shown that all of the recitations of a claim are taught in the prior art or are suggested by the prior art. *In re Royka*, 490 F.2d 981, 985, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974), cited in M.P.E.P. §2143.03.

The Examiner has failed to show that all of the recitations of claims 1-19, 21-30, 32-37 and 41-45 are taught, disclosed or fairly suggested by either Weare et al. in view of McEachern et al. further in view of Logan or the combination thereof. Accordingly, the Examiner has failed to make out a prima facie case for an obviousness rejection.

Thus, Appellants submit that all of the claims presently in the application are allowable.

For the reasons advanced above, Appellants respectfully urge that the rejection of claims 1-19, 21-30, 32-37 and 41-45 is improper. Reversal of the rejection of the Office Action is respectfully requested.

Respectfully submitted,

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Eamon J. Wall
Registration No. 39,414
Wall & Tong, L.L.P.
595 Shrewsbury Ave.
Shrewsbury, NJ 07702
Telephone: (732) 842-8110 x120
Facsimile: (732) 842-8388
Attorney for Appellant(s)

CLAIMS APPENDIX

This listing of claims will replace all prior versions, and listings, of claims in the application

1. (Previously Presented) A method for program content identification, said method comprising:

for each of at least two media program subsets, performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

grouping frequency coefficients of said second frequency domain representation of said blocks to form segments;

selecting a plurality of said segments; and

comparing selected segments to features of stored programs to identify thereby said media program subset; and

determining whether said subsequent media program subset exhibits similarities to said initial media program subset.

2. (Original) The invention as defined in claim 1 wherein each grouping of frequency coefficients of said second frequency domain to form a segment represents blocks that are consecutive in time in said media program.

3. (Original) The invention as defined in claim 1 wherein said plurality of filters are arranged in a group that processes a block at a time, the portion of said second frequency domain representation produced by said group for each block forms a frame, and wherein at least two frames are grouped to form a segment.

4. (Original) The invention as defined in claim 1 wherein said selected segments correspond to portions of said media program that are not contiguous in time.

5. (Original) The invention as defined in claim 1 wherein said plurality of filters includes at least a set of triangular filters.

6. (Original) The invention as defined in claim 1 wherein said plurality of filters includes at least a set of log-spaced triangular filters.

7. (Original) The invention as defined in claim 1 wherein the segments selected in said selecting step are those that have largest minimum segment energy.

8. (Previously Presented) The invention as defined in claim 1 wherein the segments selected in said selecting step are selected in accordance with prescribed constraints such that their respective center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$.

9. (Original) The invention as defined in claim 1 wherein the segments selected in said selecting step are selected for portions of said media program that correspond in time to prescribed search windows that are separated by gaps.

10. (Original) The invention as defined in claim 1 wherein the segments selected in said selecting step are those that result in the selected segments having a maximum entropy over the selected segments.

11. (Original) The invention as defined in claim 1 further comprising the step of normalizing said frequency coefficients in said second frequency domain representation after performing said grouping step, said normalization being performed on a per-segment basis.

12. (Original) The invention as defined in claim 11 wherein said normalization step includes performing at least a preceding-time normalization.

13. (Original) The invention as defined in claim 11 wherein said normalization is step includes performing at least an L2 normalization.

14. (Original) The invention as defined in claim 1 further comprising the step of storing said selected segments in a database in association with an identifier of said media program.

15. (Original) The invention as defined in claim 14 further comprising the step of storing in said database information indicating timing of said selected segments.

16. (Original) The invention as defined in claim 1 wherein said first frequency domain representation of blocks of said media program is developed by the steps of:

digitizing an audio representation of said media program to be stored in said database;

dividing the digitized audio representation into blocks of a prescribed number of samples;

smoothing said blocks using a filter; and

converting said smoothed blocks into the frequency domain, wherein said smoothed blocks are represented by frequency coefficients.

17. (Original) The invention as defined in claim 16 wherein said filter used in said smoothing step is a Hamming window filter.

18. (Original) The invention as defined in claim 16 wherein each of said smoothed blocks are converted into the frequency domain in said converting step using a Fast Fourier Transform (FFT).

19. (Original) The invention as defined in claim 16 wherein each of said smoothed blocks are converted into the frequency domain in said converting step using a Discrete Cosine Transform (DCT).

20. (Canceled).

21. (Previously Presented) A method for program content identification, comprising

for each of at least two media program subsets, performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

grouping ones of said second frequency domain representation to form segments;

storing at least 30 minutes worth of segments;

and

selecting a plurality of said segments.

22. (Previously Presented) An apparatus for program, comprising:

a plurality of filters for filtering a first representation of a media program subset using frequency coefficients to develop a second representation of said media program subset that has a reduced number of frequency coefficients with respect to said first representation for each of at least two media program subsets, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

means for grouping ones of said coefficients of said second representation to form segments;

means for storing at least 30 minutes worth of segments; and

means for selecting a plurality of said segments.

23. (Previously Presented) An apparatus for program content identification, comprising:

means for filtering a first frequency domain representation of a media program subset using a plurality of filters to develop a second frequency domain representation of each of said subsets of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to said first frequency domain representation for each of at least two media program subsets, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

means for grouping ones of said second frequency domain representation to form segments;

means for storing at least 30 minutes worth of segments; and

means for selecting a plurality of said segments.

24. (Previously Presented) A method for program content identification, said method comprising:

for each of at least two media program subsets, performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

grouping frequency coefficients of said second frequency domain representation of said blocks to form segments;

searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers;

and

determining whether said subsequent media program subset exhibits similarities to said initial media program subset.

25. (Original) The invention as defined in claim 24 further comprising the step of indicating that said media program cannot be identified when substantially matching segments are not found in said database in said searching step.

26. (Original) The invention as defined in claim 24 wherein said data base includes information indicating timing of segments of each respective media program identified therein, and wherein a match may be found in said searching step only when the timing of said segments produced in said grouping step substantially matches the timing of said segments stored in said database.

27. (Original) The invention as defined in claim 24 wherein said matching between segments is based on the Euclidean distances between segments.

28. (Original) The invention as defined in claim 24 further comprising the step of identifying said media program as being the media program indicated by the identifier stored in said database having a best matching score when substantially matching segments are found in said database in said searching step.

29. (Original) The invention as defined in claim 28 further comprising the step of determining a speed differential between said media program and a media program identified in said identifying step.

30. (Original) The invention as defined in claim 28 wherein said matching score for a program P_i is determined by $P_i = \frac{1}{Z} \sum_{j=1}^Z f(S'_{j=1} - S_j(P_i))$.

31. (Cancelled).

32. (Previously Presented) The invention as defined in claim 24 wherein said determining step is based on an overlap score.

33. (Previously Presented) The invention as defined in claim 32 wherein overlap score is calculated between said program determined prior to a repetition, P0, and said program determined during said repetition, P1, is calculated as

$$\text{Overlap score} = (t_{\text{end}} - t_{\text{begin}}) / (\text{end time of P1} - \text{beginning time of P1})$$

where

t_{end} is min(end time of P0, P1); and

t_{begin} is max(beginning time of P0, P1).

34. (Previously Presented) A method for program content identification, said method comprising

for each of at least two media program subsets, performing the steps of:

filtering each first frequency domain representation of blocks of a media program subset using a plurality of filters to develop a respective second frequency domain representation of each of said blocks of said media program subset, said second frequency domain representation of each of said blocks having a reduced number of frequency coefficients with respect to said first frequency domain representation, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of 1/12;

grouping ones of said second frequency domain representation to form segments;

searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers;

and

determining whether said subsequent media program subset exhibits similarities to said initial media program subset.

35. (Previously Presented) An apparatus for program content identification, comprising:

means for filtering a first frequency domain representation of a media program subset using a plurality of filters to develop a second frequency domain representation of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to said first frequency domain representation for each of at least two media program subsets, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$;

means for grouping ones of said second frequency domain representation to form segments;

means for searching a database for substantially matching segments, said database having stored therein segments of media programs and respective corresponding program identifiers;

and

means for determining whether said subsequent media program subset exhibits similarities to said initial media program subset.

36. (Original) The invention as defined in claim 35 wherein said first frequency domain representation of said media program comprises a plurality of blocks of coefficients corresponding to respective time domain sections of said media program and said second frequency domain representation of said media program comprises a plurality of blocks of coefficients corresponding to respective time domain sections of said media program.

37. (Previously Presented) A computer readable storage arranged to store at least 30 minutes worth of segments derived from, and representative of, various media programs, said segments of each respective one of said media programs being stored in said database so as to be associated with a unique media program identifier;

wherein each of said segments is developed by filtering a first frequency domain representation of said media program using a plurality of filters to develop a second frequency domain representation of said media program having a reduced number of frequency coefficients in said second frequency domain representation with respect to

said first frequency domain representation, and grouping ones of said second frequency domain representation for each of at least two media program subsets, said plurality of filters having center frequencies logarithmically spaced apart from each other substantially in accordance with a logarithmic additive factor of $1/12$.

38-40 (Canceled).

41. (Previously Presented) The invention as defined in claims 1, wherein at least two of said media subsets are associated with the same media program.

42. (Previously Presented) The invention as defined in claims 1, wherein at least two of said media subsets are associated with different media program.

43. (Previously Presented) The invention as defined in claims 21, wherein at least two of said media subsets are associated with the same media program.

44. (Previously Presented) The invention as defined in claims 22, wherein at least two of said media subsets are associated with different media program.

45. (Previously Presented) The invention as defined in claims 23, wherein at least two of said media subsets are associated with the same media program.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.